

Version 22.12.2016

Preliminary Current Catalog of Solar Flare Events with X-ray Classes M1-X > 17.5

XXIV Cycle of Solar Activity (I.2009 - VIII.2016.....)

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y m d - date: year, month, day;  
to tm te - begin, maximum, end of the flare event;  
Xray/opt - X-ray class and optical importance of the flare event;  
L (J\*m-2) - X-ray integrated flux from start to max, in joule m-2;  
lt, lg, L - the spherical, heliographic coordinates of the solar flare in Ha as a distance in degrees from the solar equator (heliographic latitude), and distance in degrees from a line extending from the north solar rotational pole to the south solar rotational pole through the center of the solar disk as viewed from Earth (central meridian). The Carrington longitude (L) is the heliographic longitude of a solar feature in the coordinate system that rotates with the Sun (Solar Geophysical Data PRF).  
AR - solar active region;  
RADIO - the peak value above pre-burst background of associated radio bursts at frequencies of 245 and 2695 MHz in (s.f.u.) solar flux units (1 flux unit =  $10^{*-22}$  Wm $^{*-2}$  Hz $^{*-1}$ ). (Solar Geophysical Data PRF)  
RADIO SWEEP - The intensity is a relative scale from 1 (minor) to 3 (major) of any sweep radio event associated with the energetic event, as follows: Type II: Slow drift burst. Type IV: Broadband smooth continuum burst (Solar Geophysical Data PRF).  
CME - coronal mass ejection: to - First C2 Appearance; v - Linear Speed [km/s]; T - type: Halo and partial Halo; pa - Position Angle measured from Solar North in degrees (counter-clockwise);  
CME on LASCO CME - list: [http://cdaw.gsfc.nasa.gov/CME\\_list/](http://cdaw.gsfc.nasa.gov/CME_list/)  
Preliminary CME - list (c): <http://sidc.oma.be/cactus/catalog.php>  
X-ray hard - A - Space satellite (R - RHESSI),  
n - number of hard X-ray bursts in this flare event;  
tm - time of maximum intensity of the hardest X-ray burst in this flare event;  
Emax(keV) - maximal energetic band of the hardest X-ray in the flare event  
h - data HESSI: [http://hesperia.gsfc.nasa.gov/hessidata/dbase/hessi\\_flare\\_list.txt](http://hesperia.gsfc.nasa.gov/hessidata/dbase/hessi_flare_list.txt)  
Date Time [UT]  
\* - before to means, that all the given flares make one flare event;  
\* - instead of an optical important is put, if at present was not Ha-patrol;  
the optical important after "\*" - means, that the given optical importance has been resulted in Preliminary SGD and not confirmed in SGD II;  
g - there are no data on CME in other catalogs;  
- Coordinates flare events with small letters are given for the restored events,

1. When at presence of Ha-patrol flare in SGD II is not registered, in this case x-ray burst with a high probability was occurrence for solar limb;  
if corresponding CME it was not observed after number of active region the sign is put "?";
  2. In case of if flare event coordinates are in Preliminary SGD and are not present in SGD II;  
- a sign "?" before hard X-ray burst means, that time of a maximum of its realization is close, but is not entered during realization flare events;  
- a sign "?" before CME means that parameters of the CME can be refinements.  
- if after a x-ray class is not present "/", coordinates of flare were defined on localization of x-ray flare (there is no message on optical flare in SGD II though Ha-patrol was).
- n - solar neutrons registration;  
GLE - Ground Level Event registration  
Attendant phenomena - active dynamic phenomena, constituting the flare event: WL, EPL, DSF, SPY, \*flares smaller class M1

## 2010

D A T E		T I M E			IMPORTANT	COORDINATES AR			RADIO	MHz	DYNAMIC EVENT	CME	X-ray HARD	PROTONS	Attendant			
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP to/	v / T /pa	An/ tm / Emax	E>10MeV	n	Attendant
											s.e.p.	km/s	keV	D  tmax/Ipr /GLE	phenomena			
20100119	1303	1341	>1350	M2.3/	.039	S25E90L053	11041						1406/0153/044/101	R2/1341/012-025				
20100119	2023	2035	>2046	M1.7/	.018	S25E90L053	11041						?2058/0253/041/255	R /2027/012-025				
20100120	0645	0727	0735	M1.0/SF	.019	S24E87L053	11041							R2/0708/012-025				
20100120	0742	0749	0758	M1.6/SF	.012	S24E88L053	11041											
20100120	1046	1059	>1110	M1.8/	.017	s24e86L053	11041						1130/0101/046/099	R /1049/012-025				
20100120	1750	1755	1810	M3.4/SF	.017	S26E81L053	11041							R /1755/012-025				
20100206	1847	1859	1933	M2.9/SN	.026	N21E17L253	11045			54			2006/0240/097/083	R /1857/012-025				
20100206	2131	2137	>2142	M1.3/	.0074	n21e15L253	11045											
20100207	0220	0234	0303	M6.4/1N	.037	N20E09L253	11045	170	420	IV/2	0354/0421/360/113	R /0245/012-025						
20100208	0736	0743	>0746	M4.0/	.13	L253	11045	150	290			R4/0741/050-100						
20100208	1157	1203	>1206	M1.1/	.003	L253	11045					R5/1251/006-012						
20100208	1332	1347	>1350	M2.0/	.0082	L253	11045					R /1355/006-012?						
20100208	2101	2123	2140	M1.0/2F	.004	N28W53L250	11045											
20100212	1119	1126	>1140	M8.3/1N	.019	N26E11L185	11046	350	660		1342/0509/360/044	R /1126/050-100						
20100212	1752	1808	1841	M1.1/2F	.006	N22W53L250	11045											
20100505	1713	1719	1735	M1.2/SF	.003	N42W37L225	11069						1754/0231/023/228	R /1718/025-050				
20100612	0030	0057	0113	M2.0/SN	.007	N23W43L099	11081	27000	130	II/2	0131/0486/119/294	R /0057/003-006						
20100613	0530	0539	>0544	M1.0/SF	.004	S25W84L123	11079	180		II/1	0606/0320/033/253	R /0538/003-006						
20100807	1755	1824	1955	M1.0/2F	.018	N11E34L348	11093	120	100	II/2	IV/2	1836/0871/360/094	R2/1813/012-025					
20101016	1907	1912	1930	M2.9/1N	.064	S20W26L202	11112			II/3		2012/0350/032/274	R /1912/050-100					
20101104	2330	2358	>0012	M1.6/SF	.014	S20E76L211	11121					0126/0313/011/109	R /0010/012-025					
20101105	1243	1329	>1400	M1.0/	.023	s20e69L211	11121						R2/1326/012-025					
20101106	1527	1536	1711	M5.4/1N	.026	S19E58L211	11121	100				1612/0178/033/116	R3/1528/006-012					

2011

DATE			TIME			IMPORTANT	COORDINATES			RADIO	MHz	DYNAMIC EVENT		CME	X-ray	HARD	PROTONS	Attendant
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP	to/	v / T /pa	An/ tm / Emax	E>10MeV	n
						J*m-2					s.e.p.		km/s		keV	D  tmax/Ipr	/GLE phenomena	
20110128	0044	0103	>0110	M1.3/	.093	n16w90L343	11149						II/1	0126/0606/119/290	R2/0056/025-050	28 1625/2.8		
20110209	0123	0131	>0135	M1.9/SF	.0063	N17W72L172	11153											
20110213	1728	1738	1846	M6.6/1N	.040	S20E04L036	11158	9900	210	II/1	IV/2	1836/0373/276/089						
20110214	1720	1726	1804	M2.2/1N	.009	N56W18L034	11158			II/2		1824/0326/360/315	R /1728/006-012					
20110215	0144	0156	>0206	X2.2/	.160	S20W15L034	11158	45000	1300	II/2	IV/2	0224/0669/360/189	R /0156/050-100	15 1115/2.5		WL		
20110216	0132	0139	>0146	M1.0/	.0051	S20W24L034	11158					0236/0411/092/035	R /0138/025-050					
20110216	0735	0744	>0755	M1.1/	.0086	n10e25L331	11161						R /0748/012-025					
20110216	1419	1425	1436	M1.6/1F	.0044	S20W32L034	11158	9900	330	II/3	IV/1	g	R /1425/025-050					
20110218	0955	1011	>1015	M6.6/	.0019	s20w53L034	11158	230				?1212/0350/089/272	R2/1011/050-100					
20110218	1023	1026	>1037	M1.0/	.007	n10e02L334	11162											
20110218	1259	1303	>1306	M1.4/	.0033	s20w54L034	11158						R /1303/025-050					
20110218	1400	1408	>1415	M1.0/	.005	n10w01L336	11162					?1712/0259/099/310	R /1408/012-025					
20110218	2056	2104	>2114	M1.3/	.0095	n10w04L336	11162						R /2103/006-012					
20110224	0723	0735	>0742	M3.5/	.020	N14E87L179	11163	800	180	II/2	IV/1	0748/1186/158/096	R /0732/050-100					
20110228	1238	1252	>1303	M1.1/	.0091	n24e40L164	11164	100				1348/0341/030/079	R /1250/025-050					
20110307	0500	0513	0525	M1.2/1F	.0081	N24W48L164	11164						R /0511/025-050					
20110307	0749	0754	0803	M1.5/SF	.0037	S20W78L182	11165	110										
20110307	0759	0807	0828	M1.4/1F	.010	N25W47L164	11164	100	100				R /0820/006-012					
20110307	0914	0920	0931	M1.8/SF	.0089	N23W50L164	11164		190				R /0919/025-050					
20110307	1345	1430	>1456	M1.9/SF	.062	N10E18L091	11166			II/2	IV/1	1448/0698/261/053	R3/1409/012-025?					
20110307	1943	2012	>2058	M3.7/	.120	S22W67L164	11164	5400	23000	II/3		2000/2125/360/313	R2/2005/100-300	08 0800/50		n		
20110307	2145	2150	>2155	M1.5/	.0066	S17W82L182	11165						R2/2149/025-050					
20110308	0224	0229	0238	M1.3/1N	.0032	S18W79L182	11165						R /0229/025-050					
20110308	0337	0358	>0420	M1.5/1F	.028	s19e69L028	11171		130	II/2	IV/1	0412/0732/260/119	R /0347/025-050					
20110308	1035	1044	>1055	M5.3/1F	.034	S17W86L182	11165											
20110308	1808	1828	>1841	M4.4/	.057	s17w90L182	11165					1900/0283/043/249	R /1821/050-100					
20110308	1946	2016	>2119	M1.4/	.067	s17W90L182	11165					2012/0702/099/225	R3/2018/012-025					
20110309	1035	1107	>1121	M1.7/SF	.026	N08W03L093	11166	480				?1212/0315/013/235	R2/1051/025-050					
20110309	1317	1402	>1413	M1.7/SF	.023	N09W061093	11166					?IV/1?1612/0215/018/235	R2/1400/025-050					
20110309	2313	2323	0016	X1.5/2B	.067	N08W09L093	11166						R2/2322/050-100					
20110310	2234	2241	>2249	M1.1/SF	.0058							?0012/0143/014/091	R /2240/012-015					
20110312	0433	0443	0454	M1.3/2N	.0079	N05W36L093	11166			II/1								
20110314	1930	1952	2015	M4.2/1N	.010	N18W48L062	11169					2135/0146/044/279	R2/1951/050-100					
20110315	0018	0022	>0024	M1.0/	.0018	n18w55L062	11169						R /0022/050-100					
20110323	0203	0217	>0224	M1.4/	.009	s16e63L200	11176	970				0236/0772/051/131	R /0204/006-012					
20110324	1201	1207	1217	M1.0/1F	.0033	S16E43L200	11176	910				?1248/0540/191/092	R /1212/012-025					
20110325	2308	2322	>2330	M1.0/SF	.008	s12e23L200	11176	870	170	II/1	IV/1?	0125/0339/012/004	R /2319/012-025					
20110415	1702	1712	1844	M1.3/1F	.012	N14W19L338	11190		64			1936/0193/028/114	R2/1722/012-025					
20110422	0435	0457	0522	M1.8/SN	.029	S18E43L192	11195					?0624/0248/060/305	R /0448/025-050					
20110422	1547	1553	1641	M1.2/1N	.011	S18E35L192	11195					g	R /1617/012-025					
20110528	2109	2150	>2201	M1.1/SF	.023	S20E71L037	11226						R2/2150/012-025					
20110529	1008	1033	1133	M1.4/1F	.038	S22E65L037	11226	100		II/1		?1036/0646/119/116	R /1031/012-025					
20110607	0616	0641	0809	M2.5/2N	.044	S21W54L037	11226	6400	710	II/2	IV/2	0649/1255/360/250	R2/0638/050-100	07 1820/72.9		n		
20110614	2136	2147	>2210	M1.3/SF	.018	N15E77L165	11236					2236/0313/028/135	R /2146/050-100					

DATE		TIME			IMPORTANT	COORDINATES AR			RADIO	MHz	DYNAMIC EVENT	CME	X-ray HARD	PROTONS	Attendant			
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP	to/	v / T /pa	An/ tm / Emax	E>10MeV	n
						J*m-2					s.e.p.		km/s		keV	D  tmax/Ipr	/GLE	phenomena
20110727	1548	1607	1640	M1.1/1N	.013	N20E37L358	11260	140								R /1605/012-025		
20110730	0204	0209	>0212	M9.3/SF	.020	N21W68L330	11199?	180	180							R /0209/050-100		
20110802	0519	0619	>0648	M1.4/1N	.039	N14W15L358	11261	620	220	II/2		0636/0712/268/285			R3/0612/012-025			
20110803	0308	0337	0405	M1.1/SF	.016	N17W24L358	11261								R2/0335/025-050			
20110803	0429	0432	0504	M1.7/1F	.003	N15E08L301	11263		130						R2/0432/050-100			
20110803	1317	1348	1538	M6.0/2B	.120	N16W30L358	11261	1400	180	II/1	IV/2	1400/0610/360/307			R2/1358/012-025			
20110804	0341	0357	0505	M9.3/2B	.054	N19W36L358	11261	13000	720	II/2		0412/1315/360/298			R3/0347/050-100	05 2150/96		
20110808	1800	1810	1855	M3.5/1B	.022	N16W61L301	11263	520	300	II/1		?1812/1343/237/281			R /1828/012-025	08 2000/ 4		
20110809	0319	0354	0439	M2.5/1B	.035	N18W68L301	11263					0348/1146/141/272			R2/0326/025-050			
20110809	0748	0805	0904	X6.9/2B	.190	N17W69L301	11263	19000	710	II/1		0812/1610/360/279			R3/0805/025-050	09 1210/26		
20110904	1121	1145	>1150	M3.2/SF	.018	n15w76L137	11286					?1224/0203/053/287			R /1240/012-025			
20110905	0408	0428	>0432	M1.6/SF	.022	N15W74L304	11286								R2/0426/012-025			
20110905	0727	0758	>0806	M1.2/SF	.017	N15w90L304	11286								R2/0757/012-025			
20110906	0135	0150	0236	M5.3/1B	.054	N14W07L224	11283	54000		II/3	IV/1	0224/0782/360/070			R /0146/025-050	06 1410/2.4		
20110906	*2212	2220	0029	X2.1/3B	.058	N14W18L224	11283	64000	740	II/2	IV/3	2306/0575/360/300			R /2220/100-300	07 0715/8.8		
20110907	*2232	2238	>2348	X1.8/3B	.069	N14W28L224	11283	180	1300	II/1	IV/1	2306/0792/167/269			R /2303/006-012			
20110908	1532	1546	1632	M6.7/1N	.042	N14W40L224	11283	130	91		IV/1	1636/0214/037/311			R /1544/050-100			
20110909	0601	0611	0633	M2.7/1N	.015	N16W47L224	11283	120	62	II/1		0724/0318/086/265			R /0609/050-100			
20110909	1239	1249	1305	M1.2/1F	.0078	N13W52L224	11283	150							R /1244/025-050			
20110910	0718	0740	0803	M1.1/SN	.019	N12W61L224	11283	2300				0848/0610/169/257			R /0727/025-050			
20110921	1204	1223	>1245	M1.8/	.034	n11e90L279	11302								R2/1234/012-025			
20110922	0953	1000	>1009	M1.1/	.0076	n11e80L279	11302								R2/0958/025-050			
20110922	1029	1101	1227	X1.4/2N	.450	N13E78L279	11302		970	II/2	IV/3	1048/1905/360/072			R3/1054/025-050	26 1155/35		
20110923	0136	0159	0239	M1.6/1N	.016	N25W63L057	11295								R /0156/012-025			
20110923	2154	2215	>2234	M1.6/SF	.030	N23W73L057	11295	190	210			2348/0337/021/326			R2/2209/025-050			
20110923	2348	2356	>0004	M1.9/SF	.013	N11E52L279	11302	170	220	II/3		0012/0617/072/108			R /2354/025-050			
20110924	0921	0940	1010	X1.9/2B	.110	N12E60L279	11302	33000	660	II/2	IV/3	0948/1936/145/090			R2/0940/100-300			
20110924	1233	1320	>1410	M7.1/1B	.290	n12e58L279	11302	4800	12000			1248/1915/360/078			R2/1310/012-025			
20110924	1636	1659	>1715	M1.7/	.032	n23w84L057	11295				IV/1				R /1709/012-025			
20110924	1719	1725	>1731	M3.1/	.016	n12e51L279	11302								R /1722/025-050			
20110924	1759	1815	>1824	M2.8/1B	.033	N15E56L279	11302					1836/0585/059/127						
20110924	1909	1921	>1941	M3.0/	.046	n14e54L279	11302	2100	270	II/2		1936/0972/360/043			R /1915/025-050		n	
20110924	2029	2036	>2042	M5.8/	.024	n13e52L279	11302	130							R2/2035/025-050			
20110924	2103	2127	2145	M1.2/SF	.007	S29W67L034	11303											
20110924	2238	2358	0015	SF/M1.0	.011	S29W68L034	11303	190			IV/2	0024/0557/132/238			R2/2355/025-050			
20110925	0227	0233	0302	M4.4/SF	.014	N12E49L279	11302					0348/0401/008/017			R /0243/025-050			
20110925	0431	0450	0541	M7.4/2N	.096	N11E47L279	11302	320	150		IV/2	0512/0788/193/109			R /0445/025-050			
20110925	0846	0849	>0852	M3.1/1N	.0059	N15E45L279	11302					?0912/0398/016/015						
20110925	0925	0935	>0953	M1.5/	.021	s29w74L034	11303	100	250			?1036/0652/038/113			R /0932/050-100			
20110925	1400	1533	1843	2B/M3.7	.016	N16E43L279	11302	1500	180			1600/0676/067/108			R5/1533/050-100			
20110925	1651	1658	>1709	M2.2/SF	.017	S28W75L034	11303								R2/1704/012-025			
20110926	0506	0508	0657	M4.0/1B	.014	N13E34L279	11302		360		IV/1?	0624/0689/048/249			R6/0508/050-100			
20110926	1431	1446	1536	2B/M2.6	.026	N14E30L279	11302					1512/0420/031/082			R2/1445/025-050			
20110928	1324	1328	1341	M1.2/1N	.0023	N13E03L279	11302		110			1424/0307/044/254			R /1340/006-012			
20110930	1852	1906	1935	1F/M1.0	.008	N08E06L246	11305	220	260	II/1		2000/0337/183/062			R /1918/012-025			
20111001	0856	0959	1039	M1.2/1N	.029	N10W06L246	11305	540	180	II/1	IV/2	0936/0448/203/315			R3/0932/012-025			
20111002	0037	0050	0137	M3.9/1N	.028	N09W12L246	11305	270				0200/0259/103/179			R /0047/025-050			
20111002	1719	1723	1758	M1.3/SF	.0028	N09W56L279	11302					1824/0241/048/286			R /1728/012-025			
20111020	0310	0325	>0344	M1.6/	.022	w90					IV/1	0336/0893/193/288			R /0318/025-050			



DATE		TIME			IMPORTANT	COORDINATES AR			RADIO MHz		DYNAMIC EVENT		CME	X-ray HARD		PROTONS	Attendant	
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP	to/	v / T /pa	An/ tm / Emax	E>10MeV	n
					J*m-2					s.e.p.		km/s	keV		D  tmax/Ipr	/GLE phenomena		
20120306	0401	0405	0419	M1.0/1N	.0026	N16E39L301	11429							0448/0536/111/022	R /0404/012-025			
20120306	0752	0755	>0800	M1.0/	.0027	n15e35L301	11429							?0812/0599/107/043	g(6/06-8/01)			
20120306	1223	1241	1318	M2.1/1N	.022	N18E36L301	11429							?1448/0407/046/045	g			
20120306	2104	2111	>2114	M1.3/	.0049									?2057/0176/043/288	g			
20120306	2249	2253	>2311	M1.0/	.010	N16e30L301	11429								g			
20120307	*0002	0024	0349	X5.4/3B	.670	N17E27L301	11429	300000	7200	II/2	IV/2	0024/2684/360/057			g		07 1540/6530	
20120307	*0105	0114	0130	X1.3/SF	.150	N22E12L315	11430				II/2				g			
20120309	0322	0353	0618	M6.3/SF	.130	N15W03L301	11429	6200		II/2	IV/1	0426/0950/360/029			R7/0428/050-100			
20120310	1715	1744	>1830	M8.4/	.260	N17W24L301	11429	1500	460		IV/2	1812/1379/360/338			R2/1753/012-050			
20120313	1635	1741	2046	1B/M7.9	.240	N19W59L301	11429	1200	1400	II/3	IV/3	1736/1884/360/286			R8/1645/012-025		13 1810/0469	
20120314	1508	1521	1615	M2.8/1N	.029	N14E05L220	11432	160	72			1636/0411/101/057			R /1555/012-025			
20120315	0723	0752	0834	M1.8/1F	.022	N14W03L220	11432				II/1	0924/0485/107/035						
20120317	2032	2039	2053	M1.3/SF	.0036	S20W25L211	11434	610	54	II/2		?2212/0066/064/354			R /2038/012-025			
20120323	1934	1940	>1944	M1.0/	.003	s23e87L029	11445								R /1947/012-025			
20120416	1724	1745	>1800	M1.7/BSL	.025	n13e87L068	11461					1748/1348/166/088			R /1737/025-050			
20120505	1319	1323	1332	M1.0/SN	.0055	N13E82L188	11476					g(05/22-11/10)						
20120505	2256	2301	>2304	M1.3/SF	.0036	N09E75L188	11476					g			R /2301/025-050			
20120506	0112	0118	>0120	M1.1/	.0023	n09e77L188	11476					g			R /0118/025-050			
20120506	1741	1747	1826	M1.3/1N	.0044	N10E64L188	11476					g			R2/1747/025-050			
20120507	1403	1431	1539	M1.9/1N	.035	S19W46L279	11471		230		IV/1	g			R2/1426/012-025			
20120508	1302	1308	1320	M1.4/1F	.0045	N13E44L188	11476		69			g			R /1307/003-006			
20120509	1221	1232	1317	M4.7/1N	.019	N13E31L188	11476		110			g			R /1230/006-012			
20120509	1402	1408	1441	M1.8/1B	.0075	N06E22L188	11476		68			g						
20120509	2101	2105	>2109	M4.1/	.012	n10e21L188	11476		240			g			R /2052/025-050			
20120510	0411	0418	0501	M5.7/2B	.021	N13E22L188	11476		690		IV/1	g			R /0418/050-100			
20120510	2020	2026	>2030	M1.7/	.0056	n07e06L188	11476		100			g			R /2027/025-050			
20120517	0125	0147	0308	M5.1/1F	.099	N11W76L188	11476		540	II/3	IV/2	0148/1582/360/261			R /0141/100-300		17 0430/255	n/GLE
20120603	1748	1755	>1757	M3.3/	.007	N16E38L201	11496	13000	320	II/2		1812/0605/180/039			R2/1755/100-300			
20120606	1954	2006	2100	M2.1/1B	.013	S19W05L204	11994	1200		II/3	IV/3	2036/0494/173/174			R /2029/025-050			
20120609	1120	1132	>1135	M1.9/	.0057	s17e73L086	11504		150			1248/0419/020/086			R /1119/006-012			
20120609	1645	1653	>1659	M1.8/SF	.0065	S17E74L086	11504					1848/0284/012/027			R /1652/050-100			
20120610	0639	0645	>0650	M1.3/	.005	S15E66L086	11504		100			0824/0232/012/027						
20120613	1129	1317	1623	M1.2/1N	.075	S16E18L086	11504		260		IV/2	1326/0632/253/135			R9/1316/003-006			
20120614	1252	1435	>1734	M2.1/1B	.12	S17E06L086	11504	840	1400		IV/2	1412/0987/360/144			R9/1432/003-006		16 2020/14	
20120628	1607	1612	1625	M2.4/1B	.0048	N16E45L216	11513	3300				1636/0714/104/053			R /1629/006-012			
20120629	0913	0920	0932	M2.2/1B	.0044	N17E37L216	11513	6900				0936/0904/049/025			R /0920/025-050			
20120630	1248	1252	1304	M1.0/1N	.0017	N17E21L216	11513	630				g?						
20120630	1826	1832	>1834	M1.6/	.0033	n17e17L216	11513					1848/0247/033/069			R /1832/025-050			
20120701	1911	1918	1929	M2.8/SB	.0085	N14E04L216	11513	1400	66			g?			R /1919/025-050			
20120702	0026	0035	0050	M1.1/2B	.005	N15E01L216	11513	1100				g?			R /0034/025-050			
20120702	1035	1052	1114	2B/M5.6	.027	S17E08L205	11515	590	380	II/1		1124/0313/125/183			R2/1037/012-025			
20120702	1839	2007	2040	2B/M3.8	.018	s17e03L205	11515	8200	190			2024/0527/145/189			R /1037/050-100			
20120702	2349	2356	>0003	M2.0/SF	.011	S16W02L205	11515	180				0048/0400/097/194			R /2359/012-025			
20120704	0428	0437	0502	M2.3/SN	.016	S17W18L205	11515	1600	150		IV/1	0512/0381/110/201						
20120704	*0601	0955	1250	2B/M5.3	.014	S20W18L205	11515	130	79			0836/0453/085/214			R3/0954/050-100			
20120704	*1207	1224	>1232	2B/M2.3	.026	S20W18L205	11515	270	78			1248/0290/062/203						
20120704	1435	1440	1558	M1.3/SN	.003	S18W18L205	11515				II/1	g?			R4/1440/025-050			
20120704	1626	1639	1722	2N/M1.8	.012	N14W34L216	11513	810	200	II/1		1724/0662/360/124?			R /1637/050-100			
20120704	2203	2209	>2215	M4.6/	.020	s17w21L205	11515	12000	220	II/1		2236/0556/059/205			R /2209/012-025			

DATE		TIME			IMPORTANT	COORDINATES		RADIO	MHz	DYNAMIC EVENT	CME	X-ray	HARD	PROTONS	Attendant				
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP	to/	v / T /pa	An/ tm / Emax	D  tmax/Ipr	n /GLE	phenomena
						J*m-2				s.e.p.	km/s		keV						
20120704	2347	2355	>0002	M1.2/	.0008	s17W21L205	11515												
20120705	0105	0110	0121	M2.4/3N	.0009	S18W26L205	11515							IV/1	g?		R3/2353/012-025		
20120705	0235	0242	>0247	M2.2/	.0097	s17w27L205	11515								g?		R /0131/012-025		
20120705	0325	0336	>0339	M4.7/	.014	s17w28L205	11515												
20120705	0615	0658	0743	1F/M1.1	.0085	S18W39L205	11515									0648/0738/056/224	R /0336/050-100		
20120705	0740	0745	>0748	M1.3/	.004	S18W39L205	11515										R /0653/025-050		
20120705	1044	1048	1118	M1.8/SN	.0032	S19W30L205	11515		68								R /1116/006-012		
20120705	1139	1144	1210	M6.2/1B	.018	S20W32L205	11515		290							1324/0783/056/224	R /1144/050-100	07 0745/25	
20120705	1301	1318	1418	2N/M1.2	.015	S16W43L205	11515									1424/0329/010/323?	R /1314/012-025		
20120705	2009	2014	2100	M1.6/SF	.013	S18W38L205	11515		150								R4/2038/006-012		
20120705	2137	2145	2243	M1.6/1N	.009	S12W46L205	11515	940	270							2200/0980/094/235	R2/2227/012-025		
20120706	0137	0140	0156	M2.9/SN	.004	S18W42L205	11515		130								R /0140/050-100		
20120706	0230	0251	0318	1N/M1.0	.007	S11W55L205	11515									0312/1059/073/237?			
20120706	0807	0823	0925	SB/M1.5	.0053	S17W40L205	11515									1036/0660/063/222	R /0823/025-050		
20120706	1024	1029	1051	M1.8/1N	.0052	S17W42L205	11515									1124/0218/062/245			
20120706	1324	1330	1355	SF/M1.2	.0021	S20W45L205	11515		55										
20120706	1848	1855	>1907	M1.3/SF	.083	S18W51L205	11515										R /1855/006-012		
20120706	2301	2308	>2314	X1.1/	.043	s17w55L205	11515	270	520	II/3	IV/1					2324/1828/360/233		09 0430/19	
20120707	0310	0315	>0323	M1.2/SF	.0067	S17W51L205	11515									0436/0441/055/274	R /0314/025-050		
20120707	0818	0828	>0839	M1.0/	.0096	s17e69L088	11520										R /0824/025-050		
20120707	1057	1103	1117	M2.6/SF	.0083	S19W58L205	11515												
20120708	0541	0546	0643	M1.3/1F	.0060	S13W80L205	11515									0600/0192/037/229	R3/0824/025-050		
20120708	0944	0953	1010	M1.1/1F	.0044	S21W67L205	11515									1048/0192/037/229	R /0953/025-050		
20120708	1205	1209	1229	1F/M1.4	.035	S21W69L205	11515										R /1210/050-100		
20120708	1623	1632	1646	M6.9/1N	.045	S17W74L205	11515	200	640	II/2						1654/1495/157/234			
20120709	2303	2307	>2311	M1.1/	.0028	s17e38L088	11520									0100/0449/025/236			
20120710	0458	0414	0531	M1.7/SF	.0024	S16E35L088	11520												
20120710	0605	0627	0731	M2.0/1F	.033	S17E30L088	11520									0848/0252/016/131	R /0625/025-050		
20120712	1537	1649	2041	X1.4/2B	.46	S13W03L098	11520	3900	800	II/2	IV/2					1624/0657/360/229	R3/1651/050-100	12 2225/96	
20120714	0426	0458	0526	1F/M1.0	.0061	S16W25L096	11521									0446/0293/010/282	R /0516/006-012		
20120717	1203	1715	>1904	M1.7/1F	.0021	S28W65L088	11520									1348/0958/176/241		18 0600/136	
20120719	0417	0558	>0656	M7.7/SF	.0024	S16W90L088	11520	260	1000	II/1	IV/1					0524/1631/360/275	R3/0530/050-100		
20120727	1717	1726	>1732	M2.8/	.016	S22E71L185	11532	290	340	II/1	IV/1					1748/0393/114/124			
20120728	2044	2056	2115	M6.1/2N	.040	S25E54L185	11532	56000	370	II/2	IV/2					2120/0420/360/134	R /2104/012-025		
20120729	0615	0622	0744	M2.3/1N	.012	S22E49L185	11532		110		IV/2						R /0638/012-025		
20120730	1539	1548	1614	M1.1/SN	.0052	S22E28L173	11536												
20120806	0433	0438	>0441	M1.6/	.0041	s17e90L031	11542	5800	84	II/1	IV/1					0512/0198/046/072	R /0437/050-100		
20120811	1155	1220	>1336	M1.0/2N	.025	S25W41L086	11540									1326/0173/067/208	R /1216/025-050		
20120817	1312	1319	>1321	M2.4/	.0069	n19e90L232	11548		59							1336/0727/170/053	R /1319/025-050		
20120817	1708	1720	>1723	M1.0/	.0061	n19e90L232	11548		140							1736/0865/174/042	R /1721/012-025		
20120818	0024	0102	0119	M5.5/SF	.029	N19E86L232	11548	460	150							0048/0986/360/043	R2/0029/012-025		
20120818	0304	0324	0341	M1.8/SN	.0081	N19E86L232	11548	120	100							0336/0834/143/046	R /0323/050-100		
20120818	1602	1607	1615	M1.0/1N	.0038	N19E86L232	11548	56	56							1624/0734/126/043			
20120818	2246	2254	2310	M1.0/SF	.0051	N19E78L232	11548									2336/0698/118/039	R /2253/012-025		
20120818	2315	2322	2332	M1.3/SN	.009	N21E76L232	11548	220								2336/0698/118/039	R /2253/012-025		
20120830	1202	1211	>1214	M1.3/	.0039	S27E85L078	11563									g?			
20120906	0406	0413	>0420	M1.6/	.0075	N03W60L126	11560										R /0412/025-050		
20120908	1735	1759	>1820	M1.4/	.028	S14W40L005	11564										R /1801/012-025		
20120909	2150	2236	2326	M1.2/1F	.036	S15W62L005	11564										R /2241/006-012		



DATE		TIME			IMPORTANT	COORDINATES			RADIO	MHz	DYNAMIC EVENT		CME	X-ray		HARD	PROTONS		Attendant		
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP	to/	v / T	/pa	An/	tm /	Emax	E>10MeV	n
							J*m-2					s.e.p.		km/s					keV	D  tmax Ipr	/GLE phenomena
20130512	2017	2032	>2103	M1.9/	.037	n10e89L292	11748	65					2036/0462/060/095	R	/2046/012-025						
20130512	2237	2244	>2252	M1.2/	.0076	n10e86L292	11748							R	/2242/025-050						
20130513	0153	0217	>0232	X1.7/	.23	n11e89L292	11748	920	320	II/1		0200/1270/360/064	R	/0213/050-100							
20130513	1157	1203	>1209	M1.3/	.0059	n11e87L292	11748							R	/1202/025-050						
20130513	1548	1605	1637	X2.8/1N	.23	N14E85L292	11748	54	520	II/2	IV/2	1608/1850/360/063	R2	/1604/300-800							
20130513	2359	0111	>0120	X3.2/2B	.22	n12e77L292	11748	2200	640	II/1	IV/1	0126/2625/360/089	R3	/0018/012-025					14 1800/1		
20130515	0124	0148	0230	2N/X1.2	.12	N12E64L292	11748	430	440	II/1	IV/2	0148/1366/360/093	R	/0144/050-100					17 1720/41		
20130516	2136	2153	2252	M1.3/1N	.012	N13E41L292	11748							R3	/2152/012-025						
20130517	0843	0857	1056	M3.2/2B	.044	N12E57L292	11748	1500	450	II/2	IV/2	0912/1345/360/050	R4	/0909/050-100							
20130520	0516	0525	>0603	M1.7/	.033	n09e89L204	11755							R3	/0525/050-100?						
20130522	1235	1332	1555	3N/M5.0	.14	N15W70L340	11745	140	370	II/2	IV/1	1326/1466/360/287	R3	/1320/050-100					23 0650/1660		
20130531	1952	2000	2021	M1.0/SB	.005	N13E43L098	11760			II/2	IV/1	2036/0388/100/095	R	/1959/012-025							
20130605	0814	0857	1012	M1.3/1F	.034	S32W51L130	11762	460	71	IV/1		0912/0505/214/190	R2	/0908/012-025							
20130607	2211	2249	>2304	M5.9/	.068	s32w89L130	11762		160			2312/0770/150/209	R2	/2217/012-025							
20130621	0230	0314	0357	M2.9/1F	.069	S16E73L165	11777				IV/1	0312/1900/207/107	R4	/0303/025-050					22 1700/6		
20130623	2048	2053	>2059	M2.9/1N	.0025	S15E66L129	11778					2124/0339/101/133	R	/2054/050-100					24 0520/14		
20130703	0700	0708	0723	M1.3/SF	.0019	S11E82L348	11787		58	II/2	IV/2	0724/0807/360/105	R2	/0708/025-050							
20130812	1021	1041	1130	M1.5/SN	.001	S17E19L242	11817					1200/0297/188/165	R2	/1041/025-050							
20130817	*1816	1824	2141	2B/M3.3	.021	S07W30L218	11818		110	II/2	IV/2	1912/1202/360/274	R	/2027/006-012							
20130817	*1849	1933	>1954	2B/M1.4	.046	S05W30L218	11818	260	150	II/2	IV/1	1912/1202/360/274									
20131009	0123	0148	>0156	M2.8/	.025	s23e71L143	11865			II/1	IV/1	0212/0407/123/096	R	/0152/012-025							
20131011	0701	0725	>0745	M1.5/	.031	S21E44L143	11865	980	160	II/2	IV/2	0724/1200/360/092	R	/0716/012-025							
20131013	0012	0043	0105	M1.7/	.031	S22E17L143	11865	100		II/1		0125/0478/194/157	R	/0034/012-025							
20131015	0826	0838	0932	M1.8/SN	.001	S22W13L143	11865		87			0936/0223/026/196	R	/0913/012-025							
20131015	2331	2336	2354	M1.3/1F	.004	S23W20L143	11865							R	/2336/025-050						
20131017	1509	1541	>1558	M1.2/	.025	s09w63L164	11861	170				1648/0101/269	R	/1531/012-025							
20131022	0014	0022	0030	M1.0/SF	.053	N06E17L027	11875							R	/0020/025-050						
20131022	1444	1520	>1528	SF/M1.0	.015	N07E07L027	11875					1524/0351/071/087	R2	/1453/012-025							
20131022	2115	2120	2130	M4.2/1B	.0075	N04W01L027	11875	3200	220	II/2		2148/0459/360/190	g								
20131023	*2041	2053	0049	SF/M2.7	.017	N07W07L027	11875							R2	/2224/0`2-025						
20131023	*2333	2343	>2347	SF/M1.4	.006	N07W07L027	11875							R	/2342/025-050						
20131023	*2358	0008	>0016	SF/M3.1	.023	N06W08L027	11875														
20131024	0021	0030	0048	M9.3/1N	.048	S10E08L009	11877	470		II/1	IV/1	0125/0339/360/217									
20131024	*0942	1009	~1157	2B/M2.5	.017	N07W13L027	11875		110		IV/1			R	/1046/006-012						
20131024	*1030	1033	>1037	2B/M3.5	.0080	N06W11L027	11875							R4	/1046/006-012						
20131025	0248	0302	>0312	M2.9/	.025	s07e76L293	11882			II/2	IV/1	0324/0344/121/086	R	/0259/050-100							
20131025	0753	0801	>0809	X1.7/	.090	s08e73L293	11882	5200	610	II/2	IV/1	0812/0587/360/109	R	/0800/100-300							
20131025	0943	1012	1046	M1.0/SF	.021	S03E68L293	11882					no CME g?	R3	/1011/012-025							
20131025	1451	1503	>1512	X2.1/	.16	s06e69L293	11882	8800	370	II/2	IV/2	1512/1081/360/068	R	/1501/100-300							
20131025	1702	1709	>1716	M1.3/	.008	s08e67L293	11882							R	/1708/025-050						
20131025	1905	1921	1958	M2.3/SF	.0091	S06E66L293	11882					2236/0149/040/262?	R3	/1944/012-025							
20131025	2050	2058	2204	1N/M1.9	.016	S07E64L293	11882							R4	/2118/012-025						
20131026	0559	0606	0715	1B/M2.3	.019	S09E61L293	11882	100				0700/0315/060/283?	R6	/0605/025-050							
20131026	0917	0937	>0948	M1.5/	.017	s10e58L293	11882	100	67	II/2		0948/0460/141/286?	R2	/0926/050-100							
20131026	1011	1117	~1212	1N/M1.8	.036	S05E58L293	11882	230	380			1124/0796/360/075	R7	/1104/025-050							
20131026	1924	1927	1938	M3.1/SF	.01	S09E81L261	11884	830				1912/0822/207/082									
20131026	1949	1953	>1958	M1.0/	.004	S07E53L293	11882	210						R	/1952/012-025						
20131027	1233	1248	>1252	1F/M3.5	.016	N06W63L027	11875	150				1648/0353/191/275									
20131028	0141	0203	0231	X1.0/2N	.084	N04W66L027	11875	120	120	II/2		0224/0695/360/296	R2	/0201/100-300					29 0000/4		



2014

DATE			TIME			IMPORTANT	COORDINATES			RADIO	MHz	DYNAMIC	EVENT	CME	X-ray	HARD	PROTONS	Attendant			
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP	to/	v / T	/pa	An/	tm / Emax	E>10MeV	n	
						J*m-2					s.e.p.		km/s		keV	D  tmax/Ipr	/GLE phenomena				
20140101	1840	1852	2137	M9.9/2B	.082	S17W47L223	11936							2030/0234/017/260	R	/1848/025-050					
20140102	0224	0233	>0256	M1.7/SF	.027	S05E76L101	11944								g						
20140102	2208	2218	2231	1N/M1.2	.0043	S05E72L101	11944								g						
20140103	1241	1250	>1254	M1.0/	.0051	s04e52L101	11944	530							R	/1247/012-025					
20140103	2109	2114	2123	M1.1/SF	.0040	S06E56L101	11944	140							g						
20140104	1016	1025	>1041	M1.3/2N	.014	S05E48L101	11944			140			g		R	/1019/050-100					
20140104	1847	1946	>2023	M4.0/	.14	s11e34L101	11944	620		550		IV/1?	2123/0977/360/195	R	/1949/012-025		06 1600/42				
20140104	2212	2252	>2322	M1.9/	.059	S06E39L101	11944						2312/0567/201/283	R2/2259/012-025							
20140107	0349	0353	0404	M1.0/1N	.027	N07E08L096	11946								R	/0349/025-050					
20140107	1007	1013	1124	M7.2/2B	.092	S13E11L101	11944	110		480			1036/0451/071/148	R	/1008/100-300						
20140107	1804	1832	2054	X1.2/2N	.25	S15W11L101	11944	7200		8300	II/2		1824/1830/360/231	R6/1256/012-025			09 0340/1033		/GLE		
20140108	0339	0347	>0354	M3.6/SF	.0017	N11W81L180	11947	1300		100	II/2		0412/0643/108/305	R1/0336/050-100							
20140113	2148	2151	>2153	M1.3/SF	.0018	S07W11L101	11944			94			2224/0330/124/316	R2/2148/025-050							
20140127	0105	0122	>0139	M1.0/	.015	s16e88L114	11967						0212/0687/131/088	R	/0104/012-025						
20140127	0202	0211	>0218	M1.1/	.008	s13e88L114	11967						0424/0642/024/079	R	/0152/006-012						
20140127	2205	2210	>2215	M4.9/	.016	s14e88L114	11967						0000/0773/039/093	R3/2207/025-050							
20140128	0402	0409	>0413	M1.5/	.0056	s14e88L114	11967						0548/0494/110/071	R	/0415/006-012						
20140128	0725	0731	>0734	M3.6/	.0080	s10e75L114	11967	2000					0748/0493/097/059	R	/0732/012-025						
20140128	1134	1138	>1141	M1.4/	.0031	s10e72L114	11967						1148/0656/055/066	g							
20140128	1233	1246	>1250	M1.3/	.0089	s14e79L114	11967						1536/0543/112/066	R	/1233/012-025						
20140128	1524	1526	1543	M3.5/SF	.0051	S13E88L114	11967	36000		73				R	/1525/050-100						
20140128	1900	1940	1955	M4.9/SF	.031	S14E76L114	11967	140		1700			2057/0206/023/050	R3/1902/012-025							
20140128	2204	2216	2223	M2.6/1F	.012	S14E75L114	11967						0006/0419/075/097	R2/2203/050-100							
20140130	0633	0639	>0706	M2.1/SF	.008	S15E54L114	11967						0736/0280/011/130	R	/0707/012-025						
20140130	0754	0811	0825	M1.1/SF	.025	S12E52L114	11967			69			0824/0458/360/112								
20140130	1548	1611	1619	M6.6/2N	.097	S13E58L114	11967	200		220			1624/1087/360/117	R	/1618/012-025						
20140131	1532	1542	>1553	M1.1/	.0093	n07e34L112	11968						1624/0462/170/023								
20140201	0119	0125	>0138	M1.0/1F	.0077	S11E26L114	11967						0348/0301/031/077	g							
20140201	0645	0723	0843	1B/M3.0	.025	S11E23L114	11967							R7/0711/025-050							
20140201	0624	0634	0706	M2.6/1B	.009	N12E18L112	11968							R4/0631/050-100							
20140202	0717	0820	0842	M2.2/1N	.043	S10E14L114	11967						0848/0591/258/235	R3/0806/025-050							
20140202	0924	0931	1005	M4.4/1B	.020	S11E13L114	11967							PE							
20140202	1401	1406	>1409	M1.3/	.0034	n12e14L112	11968	92		71				R2/1407/012-025							
20140202	1624	1629	>1636	M1.0/	.0050	n09e06L112	11968						1724/0463/143/224	R	/1623/012-025						
20140202	1805	1811	>1818	M3.1/	.014	s10e08L114	11967			180				R	/1801/025-050						
20140202	2124	2204	>2214	M1.3/	.028	s10e01L114	11967						2348/0199/030/123	R2/2203/025-050							
20140204	0116	0123	0254	M3.8/1B	.025	N09W13L112	11968							R2/0109/025-050							
20140204	0240	0306	>0348	M1.2/	-----	s15w03L114	11967							R2/0245/025-050							
20140204	0357	0400	0428	M5.2/1B	.018	S14W06L114	11967														
20140204	0938	0949	>0958	M1.4/	.013	s12w12L114	11967							R	/0930/025-050						
20140204	1455	1602	1712	1N/M1.5	.058	S12W12L114	11967						1636/0368/189/212	R2/1524/050-100							
20140205	1611	1620	>1642	M1.3/	.018	s10w36L114	11967							R	/1641/012-025						
20140206	2256	2305	>2310	M1.5/SF	.0077	S14W48L114	11967			180				R	/2251/025-050						
20140207	0330	0456	0549	2N/M2.0	.014	S15W50L114	11967						0536/0628/015/246	R13/0442/050-100							
20140207	1025	1029	1045	M1.9/1N	.0028	N09W53L112	11968						1036/0421/011/307	R	/1025/050-100						
20140209	1540	1617	>1652	M1.0/	.032	s16e88L318	11976?						1600/0908/360/104	R3/1557/012-025							
20140211	0314	0331	0400	M1.7/1N	.012	S12E17L356	11974	920		140	II/2	IV/1	0413/0222/081/266	R	/0314/012-025						
20140211	1553	1710	1942	M1.8/2F	.029	S10E21L356	11974	270					1924/0613/271/273	R2/1630/012-025							

DATE		TIME			IMPORTANT	COORDINATES AR			RADIO	MHz	DYNAMIC EVENT		CME	X-ray HARD		PROTONS	Attendant	
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP	to/	v / T /pa	An/ tm / Emax	E>10MeV	n
						J*m-2				s.e.p.		km/s	keV		D  tmax/Ipr	/GLE phenomena		
20140212	*0352	0425	0818	M3.7/2N	.043	S12W02L356	11974							0352/0373/360/328	R4/0418/025-050			
20140212	*0654	0658	0909	M2.3/2N	.010	S13W01L356	11974							1000/0255/042/303	R5/0653/012-025			
20140212	1541	1551	>1615	M2.1/	.029	s10w04L356	11974	160	40					1636/0533/360/331	R /1538/050-100			
20140213	*0016	0140	0357	2F/M1.8	.014	S12W09L356	11974								R2/0233/006-012			
20140213	*0241	0251	>0304	2F/M1.0	.011	S11W10L356	11974								R /0233/006-012			
20140213	0549	0607	>0613	M1.7/	.0096	s11w11L356	11974											
20140213	0805	0812	>0819	M1.0/1N	.0051	S12W13L356	11974											
20140213	1545	1557	1615	M1.4/SF	.012	S13W24L356	11974						1636/0502/104/212		R /1537/025-050			
20140214	0240	0257	0357	M2.3/2F	.024	S12W25L356	11974	2300							R3/0221/012-025			
20140214	1229	1240	1255	M1.6/1N	.0081	S15W36L356	11974		59						R2/1229/025-050			
20140214	1321	1328	>1339	M1.1/	.0084	s12w30L356	11974								R /1328/012-025			
20140214	1633	1639	1645	M1.0/SB	.0031	S13W32L356	11974	810	200				1724/0283/064/247		R /1639/012-025			
20140216	0920	0926	0934	M1.2/SN	.0034	S11E01L291	11977	2400	92	II/2	IV/1		1000/0634/360/227					
20140220	0726	0756	0832	M3.0/SN	.063	S11E43L207	11982	250	420	II/2			0800/0948/360/268		R2/0737/025-050	20 0925/22		
20140223	0550	0610	>0636	M1.1/	.022	s16e88L110	11990						0648/0540/084/108		R2/0555/025-050			
20140224	1103	1117	>1142	M1.2/SF	.019	s11e88L110	11990						1136/0495/193/110		R2/1128/012-025			EPL/1203
20140224	1200	1205	>1210	M1.3/	.0052	s12w18L207	11982						1336/0266/083/106		R /1158/006-012			
20140225	0039	0049	0210	X4.9/2B	.43	S12E82L110	11990	10000	3700	II/3	IV/2		0126/2147/360/073		R3/0037/300-800	28 0845/103		WL
20140226	<1452	1501	>1528	1N/M1.1	.0074	S13W44L207	11982						1548/0207/080/265		R /1506/012-025			
20140228	0044	0048	0056	M1.1/SN	.0019	S24E53L094	11991											
20140301	1318	1333	>1340	M1.1/	.011	s12w88L207	11982						1512/0101/078/266		R /1336/012-025			
20140302	2311	2319	>2326	M1.1/SF	.0059	N15W74L176	11986								R /2307/012-025			
20140303	1554	1558	1604	M1.2/SN	.0026	N05W36L136	11989		89									
20140305	0206	0210	>0212	M1.0/	.002	s27w08L094	11991	130					0448/0428/160/291		R3/0450/012-025			
20140308	2326	2341	>2350	M1.4/	.011	s18e64L323	12002								R /2328/025-050			
20140309	*1326	1358	1425	SN/M1.0	.0055	S17E58L323	12002								R3/1345/012-025			(*C7.1)
20140309	2013	2028	2101	M1.0/SF	.0092	S19E54L323	12002								R3/2008/025-050			
20140310	0019	0026	~0100	M1.2/SF	.0059	S19E51L323	12002								R3/0039/006-012			
20140310	0402	0408	>0413	M1.0/	.0038	s18e48L323	12002								R2/0358/012-025			
20140310	1521	1528	>1532	M1.7/	.0069	s20e43L323	12002											
20140310	2245	2300	2333	M1.4/SF	.016	N14W51L051	11996								R2/2252/003-006			
20140311	0344	0350	0429	M3.5/1F	.013	N13W55L051	11996		110				0400/0198/016/325		R2/0344/025-050			
20140311	1158	1207	>1214	M1.7	.010	s25w86L093	11991								R /1209/050-100			
20140312	1055	1105	1139	M2.5/SN	.012	N13W69L051	11996											
20140312	2228	2234	2250	M9.3/SB	.031	N15W78L051	11996		140				0125/0564/077/277		R /2228/050-100			
20140313	1903	1919	>1930	M1.3/	.012	n15w87L051	11996								R /1905/025-050			
20140320	0342	0356	0444	M1.7/1F	.016	S12E75L168	12014			II/1	IV/1		0436/0740/360/140		R /0334/012-025			
20140322	0658	0702	0710	M1.1/1F	.0022	S10W71L277	12011						?0648/0340/168/279		R /0657/025-050			
20140328	1904	1918	1939	M2.0/SN	.013	N11W21L145	12017	250		II/2			2012/0246/027/203		R /1911/025-050			
20140328	2344	2351	>2358	M2.6/	.013	n10w22L145	12017	2100		II/2			0012/0410/018/253		R /2347/025-050			
20140329	1735	1748	1816	X1.0/2B	.042	N11W32L145	12017	10000	360	II/3			1812/0528/360/325		R /1735/100-300	29 2230/3.2		
20140330	1147	1155	1224	1N/M2.1	.015	N08W43L145	12017	200	120	II/2			1224/0487/192/321		R /1216/006-012			
20140331	0720	0807	>0818	M1.4/	.019	S13W76L168	12014				IV/1		0836/0234/123/271		R3/0756/025-050			
20140402	1318	1405	1535	M6.5/2B	.14	N14E53L015	12027	520	3700	II/1	IV/2		1336/1471/360/060		R2/1332/050-100	5 0300/1		
20140416	1954	1959	2020	M1.0/1N	.0038	S14E09L224	12035	10000		II/2			2000/0764/061/166		R /1955/012-025			
20140418	1231	1303	>1320	M7.3/	.11	s18w33L242	12036	160	1000	II/2	IV/2		1326/1203/360/238		R /1250/050-100	19 0105/58		
20140425	0017	0027	>0038	X1.3/SF	.11	S15W89L204	12046			II/2			0048/0456/296/269		R /0012/050-100			
20140506	0841	0903	0937	M1.8/SF	.033	S15W84L056	12051						0848/0245/093/244		R /0916/012-025			
20140506	2201	2209	>2220	M1.0/SF	.0077	S11W89L056	12051						2218/0831/160/265		R /2158/025-050			

D A T E			T I M E			IMPORTANT	COORDINATES AR		RADIO	MHz	DYNAMIC EVENT	CME	X-ray HARD		PROTONS	Attendant		
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP	to/	v / T /pa	An/ tm / Emax	E>10MeV	n
						J*m-2				s.e.p.	km/s		keV	D  tmax/Ipr	/GLE phenomena			
20140507	1546	1629	>1703	SF/M1.2	.029	S11W89L047	12051							1624/0923/360/260	R	/1635/012-025		
20140508	0920	1007	~1125	M5.3/2B	.047	N08E54L258	12056		390					1012/0184/031/145	R2/1026/025-050			
20140524	1826	1835	1910	M1.3/SF	.0081	S19W53L142	12065		229					1948/0490/051/271				
20140603	0358	0409	0454	M1.3/2N	.0086	S05E30L301	12077							0446/0540/031/189	R	/0359/012-025		
20140606	1926	1931	1941	M1.4/SF	.0025	S12E25L269	12080								R	/1931/025-050		
20140610	1136	1142	1155	X2.2/SF	.047	S15E80L154	12087	4400	1400	II/1				1148/0925/087/102	R	/1143/050-100		
20140610	1236	1252	1317	X1.5/1F	.140	S17E82L154	12087	260	530		IV/2			1330/1469/360/156	R	/1235/050-100		
20140611	0530	0534	>0536	M1.8/SN	.0031	S12W35L261	12080	590	100					0736/0491/081/233	R	/0531/050-100		
20140611	*0800	0809	0952	M3.0/2B	.017	S14E68L154	12087	300	130		IV/1			0824/0773/103/090	R2/0839/025-050			
20140611	*0859	0906	>0910	X1.0/2B	.033	S18E65L154	12087	1800	190					0924/0829/030/125	R3/0858/100-300			
20140611	2053	2103	2120	M3.9/SF	.024	S21E58L154	12087	3000	420					2124/0490/058/119	R	/2059/025-050		
20140612	0414	0421	0432	M2.0/SF	.0082	S16E55L154	12087		89					0436/0609/072/115	R	/0408/025-050		
20140612	0923	0937	1005	M1.8/1B	.008	S25W53L254	12085	150	87					0948/0517/032/247	R3/0939/012-025			
20140612	1014	1021	1052	M2.7/1F	.013	S20E52L154	12087	450						1048/0472/054/124	R2/1024/025-050			
20140612	1803	1813	1831	M1.3/SF	.011	S19E48L154	12087	220	31					1848/0396/035/123	R	/1803/025-050		
20140612	1956	2003	2014	M1.1/SF	.0005	N17E05L196	12089											
20140612	2101	2113	2124	M1.0/SF	.0071	S22E49L154	12087	180						2139/0522/031/124	R	/2044/012-025		
20140612	2134	2216	2324	M3.1/1F	.095	S18E45L254	12087				II/2			2212/0684/186/228	R4/2220/012-025		13 0300/1	
20140613	0744	0756	0818	1N/M2.6	.0091	N18W01L154	12087				II/2			0824/0370/042/126	R	/0749/025-050		
20140614	1923	1929	>1934	M1.4/	.0054	s12e89L086	12093?							1948/0732/139/112	R	/1925/006-012		
20140615	1110	1139	>1150	M1.1/	.018	s22w89L254	12085							1300/0958/190/221?	R	/1119/012-025		
20140615	2350	0001	>0017	M1.0/	.011	s10e08L154	12087								R	/2350/012-025		
20140701	1105	1123	>1159	M1.4/	.035	S12E48L269	12104							1148/0614/195/008	g			
20140708	1604	1620	1716	2B/M6.5	.059	N12E56L161	12113	3100	150	II/2	IV/1			1636/0773/360/067	g			
20140709	0020	0026	>0033	M1.2/	.0059	S15E64L149	12114	690		II/1				0048/0672/130/062	g			
20140710	2229	2234	>2237	M1.5/	.0040	n14w86L261	12106	140							g			
20140731	1101	1114	>1121	M2.5/	.017	s10e51L226	12130							1136/0482/014/203	g			
20140801	1443	1448	>1457	M2.0/	.011	s09e48L226	12130	46	340					1512/0214/053/116	g			
20140801	1755	1813	1848	M1.5/	.035	s10e11L248	12127			97	II/2	IV/1		1836/0789/360/131	g			
20140821	1319	1331	>1342	M3.4/SF	.026	N15E86L276	12149	130			IV/2			1412/0427/059/030	R	/1339/012-025		
20140822	~0609	0628	>0718	1F/M1.2	.0073	N12E73L276	12149							0824/0296/010/121	R	/0613/025-050		
20140824	1200	1217	1310	M5.9/2B	.039	S07E75L255	12151	28	410	II/2				1236/0551/360/100	R	/1149/006-012		
20140825	1446	1511	1639	M2.0/1B	.032	N05W36L343	12146	100	150	II/2	IV/1			1536/0555/360/270	R11/1534/006-012		25 2300/1.4	
20140825	2006	2021	>2029	M3.9/1F	.03	N07W43L343	12146	84	82					2048/0711/177/277				
20140903	1320	1354	>1423	M2.5/SF	.066	S14W18L206	12152	60						1400/0468/059/097	g			
20140906	1650	1709	1727	M1.1/SF	.015	S14E53L100	12157							1724/0514/170/015	g			
20140908	2312	0029	0159	M4.5/1N	.22	N12E29L085	12158	1000	170	II/1				0006/0920/360/059	R4/0012/025-050			
20140910	1659	1745	2240	2B/X1.6	.38	N14E02L085	12158	3800	1300	II/2	IV/2			1800/1267/360/175*	R12/1813/012-025		12 1355/126	
20140911	1520	1526	>1531	M2.1/	.0086	n15e88L356	12166	210							R	/1525/025-050		
20140911	2101	2126	>2130	M1.4/	.007	n17e82L356	12166							2212/0616/118/277	R2/2108/012-025			
20140914	0203	0216	0426	M1.5/2N	.022	N14E61L356	12166							0248/0447/155/273	R4/0211/025-050			
20140918	0837	0841	>0853	M1.2/SN	.0044	N08E70L290	12169	16000	72	II/2				0937/0285/050/033	R	/0842/050-100		
20140923	2301	2316	0010	2B/M2.3	.022	S14E33L250	12173	380	250	II/2	IV/1			2336/0331/134/095				
20140927	0832	0837	>0840	M1.0/*	.0034	s14e89L151	12178							0912/0403/026/094				
20140928	0239	0258	0441	M5.1/2B	.079	N16W38L263	12175	160	220	II/1	IV/1			0324/0215/060/212	R	/0232/025-050		
20140928	1634	1733	1800	M1.0/SF	.029	S15W27L242	12172		19					1848/0288/014/327	R5/1702/025-050			
20141002	1710	1744	>1815	M1.5/SF	.038	S18W76L242	12172							1800/0245/089/240	R2/1722/012-025			
20141002	1849	1901	1925	M7.3/1F	.074	S17W82L250	12173			II/1	IV/1			1912/0513/159/248	R	/1856/025-050		
20141009	*0129	0143	0217	1F/M1.3	.0046	S15W45L120	12182							0348/0180/110/262	R2/0128/025-050			

DATE		TIME			IMPORTANT	COORDINATES AR			RADIO	MHz	DYNAMIC EVENT	CME	X-ray HARD	PROTONS	Attendant				
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP	to/	v / T /pa	An/ tm / Emax	E>10MeV	n	
						J*m-2				s.e.p.			km/s		keV	D  tmax/Ipr	/GLE	phenomena	
20141009	*0154	0158	>0202	M1.4/1F	.0044	S15W45L120	12182									R /0154/025-050			
20141009	0641	0659	0721	1N/M1.2	.0076	S18W46L120	12182									R /0648/025-050			
20141014	1821	1837	>1846	M1.1/	.0097	s13e90L252	12192		1300			1848/0848/360/090							
20141014	1907	1921	>0019	M2.2/	.31	s13e90L252	12192		180						R3/1907/025-050				
20141016	1258	1303	>1305	M4.3/	.0082	S13E88L252	12192	9000	190			1326/0777/033/096*			R /1258/050-100				
20141018	0702	0758	>0849	M1.6/SF	.066	S13E71L252	12192												
20141019	0417	0503	0639	X1.1/SN	.39	S10E58L252	12192					0448/0139/077/116*			R /0547/006-012				
20141020	0854	0911	1003	1N/M3.9	.028	S14E42L252	12192		47						R4/0958/012-025				
20141020	*1600	1637	2023	M4.5/2N	.099	S14E37L252	12192		190			1724/0161/029/093			R3/1619/025-050				
20141020	*1855	1902	>1904	M1.4/2N	.0052	S15E46L252	12192	14000	120			1912/0187/234/167			R /1857/050-100				
20141020	*1953	2004	>2013	M1.7/2N	.015	S14E36L252	12192								R /1947/025-050				
20141020	2211	2255	0007	1N/M1.2	.017	S14E36L252	12192								R8/2239/025-050				
20141021	1335	1338	>1340	M1.2/	.0014	S14E36L252	12192	42000	510	II/2					g				
20141022	0116	0159	>0228	M8.7/	.21	s13e21L252	12192		580		IV/1				R /0112/050-100				
20141022	0511	0517	>0521	M2.7/	.01	s15e14L252	12192								R /0457/012-025				
20141022	1402	1428	2230	X1.6/2B	.34	S14E13L252	12192		200						R8/1424/100-300				
20141022	1551	1557	>1603	M1.4/	.0075	S11E88L164	12197			II/1		1612/0434/080/100			R /1551/025-050				
20141023	0944	0950	>0956	M1.1/1F	.0053	S16E03L252	12192								g				
20141024	0737	0748	>0753	M4.0/	.023	s19w05L252	12192	1200	150	II/1	IV/1	0800/0677/096/203			R /0736/050-100				
20141024	2050	2141	0014	3B/X3.1	.86	S16W21L252	12192		210			2148/0184/035/210			R3/2106/050-100				
20141025	1338	1708	~0007	3B/X1.0	.39	S16W31L252	12192		160						R28/1631/025-050				
20141026	1004	1056	1253	2B/X2.0	.34	S18W40L252	12192		200						R5/1012/025-050				
20141026	1708	1717	>1730	M1.0/	.0099	s13w38L252	12192		110						R /1722/012-025				
20141026	1807	1815	>1820	M4.2/	.023	s14w37L252	12192								R /1806/050-100				
20141026	1843	1849	>1856	M1.9/	.01	s14w38L252	12192												
20141026	1959	2021	>2045	M2.4/	.052	s15w45L252	12192	400							R /2032/012-025				
20141027	*0001	0034	>1022	3B/M7.1	.10	S14W44L252	12192								R /2353/025-050				
20141027	*0144	0202	>0211	M1.0/3B	.013	S14W44L252	12192								R2/0126/025-050				
20141027	*0335	0341	>0348	M1.3/3B	.0073	S13W45L252	12192								R /0312/025-050				
20141027	*0552	0715	1348	2B/C9.6	.0037	S18W48L252	12192								R /0655/025-050				
20141027	*0959	1009	>1026	2B/M6.7	.093	S18W48L252	12192								R /0944/025-050				
20141027	1404	1447	<1531	2B/X2.0	.45	S17W52L252	12192		110			1512/0170/055/216?			R2/1401/050-100				
20141027	~1524	1740	0009	1F/M1.4	.0086	S19W56L252	12192								R2/1734/025-050				
20141028	*0215	0242	0427	M3.4/1B	.076	S14W61L252	12192								R /0238/025-050				
20141028	*0323	0332	>0341	M6.6/1B	.052	S14W61L252	12192								R3/0321/025-050				
20141028	1354	1406	>1423	M1.6/SF	.020	S18W73L252	12192		29						R /1342/025-050				
20141029	0603	0820	>0852	M1.0/SF	.076	S14W74L252	12192								R6/0602/025-050				
20141029	0954	1001	>1006	M1.2/	.0055	S18W77L252	12192								g				
20141029	1419	1433	1507	SF/M1.4	.019	S16W81L252	12192					1512/0192/101/264			R4/1423/025/050				
20141029	1606	1620	>1633	M1.0/	.012	S14W82L252	12192								g				
20141029	1847	1850	>1852	M1.3/	.0019	S13W47L252	12192								R /1847/050-100				
20141029	2118	2122	>2125	M2.3/	.0049	S09W88L252	12192								R /2122/025-050				
20141030	0034	0037	>0040	M1.3/	.0027	S14W81L252	12192								R /0032/100-300				
20141030	0119	0135	>0156	M3.5/	.047	S14W86L252	12192								R /0110/025-050				
20141030	0417	0428	0439	M1.2/SF	.009	S16W89L252	12192								R /0416/025-050				
20141103	1123	1153	>1217	M2.2/	.042	N17E90L015	12205			II/2		1200/0447/196/058			R2/1114/025-050				
20141103	2215	2240	2322	M6.5/1F	.066	N14E89L012	12205		180	II/1		2313/0638/155/061			R2/2212/012-025				
20141104	*0759	0838	>0851	M2.6/SF	.071	N15E82L012	12205					0848/0627/175/065			R /0755/012-025				
20141104	*0842	0904	0935	1F/M2.3	.029	N15E82L105	12205								R2/0849/025-050				

D A T E		T I M E			IMPORTANT	COORDINATES AR			RADIO	MHz	DYNAMIC EVENT	CME	X-ray HARD	PROTONS	Attendant		
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP to/	v / T /pa	An/ tm / Emax	E>10MeV	n
						J*m-2				s.e.p.	km/s	keV	D  tmax/Ipr	/GLE phenomena			
20141105	0926	0947	~1033	M7.9/1N	.052	N20E68L012	12205	8900	240	II/2	1000/0386/182/063	R2/0925/012-025					
20141105	1850	1944	>2018	M2.9/1N	.078	N17E65L012	12205			II/1	1948/0608/203/077	R2/1941/025-050					
20141106	0129	0139	0317	M3.2/2N	.03	N15E58L012	12205				0200/0529/035/070	R3/0154/012-025					
20141106	0329	0346	0512	1N/M5.4	.071	N17E58L012	12205			II/1 IV/1	0400/0641/210/082	R3/0329/025-050					
20141106	2153	2216	2252	M2.5/1N	.033	N14E45L012	12205	190	200		2236/0403/040/046	R2/2228/012-025					
20141107	*0201	0249	0551	2N/M2.7	.076	N17E50L012	12205	240			0428/0516/088/006	R3/0222/025-050					
20141107	*0412	0425	>0438	2N/M2.0	.026	N17E50L012	12205				0439/0672/060/114	R /0407/012-025					
20141107	0943	1022	>1030	SF/M1.0	.0069	N15E43L012	12205					R3/0958/012-025					
20141107	1453	1726	2035	3B/X1.6	.15	N17E40L012	12205			II/2 IV/1	1808/0795/293/075	R7/1227/025-050					
20141109	1524	1532	1615	M2.3/1B	.011	N18E14L012	12205				1624/0388/077/303	R /1520/050-100					
20141115	1140	1203	~1240	M3.2/SB	.024	S09E63L264	12209	3900	229		1224/0145/048/092	R /1204/012-025					
20141115	2038	2046	>2050	M3.7/	.013	S13E63L264	12209	1600	240		2124/0150/175/142	R /2039/006-012					
20141116	1735	1748	>1757	M5.7/	.041	S12E46L264	12209		300		1824/0133/137/120	g					
20141201	0626	0641	0718	M1.8/1N	.023	S21E17L083	12222					R /0624/025-050					
20141204	0736	0803?	0932	1N/M1.3	.011	S24W27L083	12222					R2/0725/012-025					
20141204	1805	1825	>1856	M6.1/	.12	S21W28L083	12222					R /1748/025-050					
20141205	1133	1225	>1247	M1.5/	.031	S23W41L083	12222					R4/1142/012-025					
20141213	0513	0520	0525	M1.5/	.0064	S09E84L217	12241				0548/0435/077/045	g	14 1020/2.5				
20141214	1925	1933	2008	M1.6/SF	.0078	S19E44L238	12242			II/2	1948/0626/148/118	R2/1935/012-025					
20141217	0055	0100?	0213	1N/M1.5	.014	S25E10L237	12242				0200/0869/108/091	R2/0125/012-025					
20141217	0130	0150	0255	SN/M1.1	.0083	S11E33L217	12241					R /0132/012-025					
20141217	0423	0442?	0638	2B/M8.7	.19	S20E09L237	12242	100	320	II/3 IV/1	0512/0260/033/359	R2/0441/025-050					
20141217	1854	1901	2003	1N/M1.4	.016	S10E24L217	12241					R2/1853/025-050					
20141218	2141	2158	2345	M6.9/2N	.1	S11E15L217	12241	550	240	II/2 IV/1	gap	R3/2140/025-050					
20141219	0931	0944	>0954	M1.3/1N	.011	S19W27L237	12242				1100/0457/024/298	R /0931/012-025					
20141220	0011	0028	0241	X1.8/3B	.27	S21W24L237	12242	120	2300	II/1	0126/0830/216/197	R4/0035/025-050	21 2015/3.2				
20141221	0718	0732	>0751	M1.2/1N	.018	S21W48L237	12242					R /0715/025-050					
20141221	1124	1217	>1257	M1.0/	.046	S13W25L217	12241				1212/0669/360/189	R2/1157/012-025					
20141222	0118	0149	0234	M1.0/1F	.011	S19W54L240	12242					R /0139/012-025					
20141227	0203	0216	0324	M2.2/2B	.014	S11W48L164	12249					R /0212/012-025					

## 2015

D A T E		T I M E			IMPORTANT	COORDINATES AR			RADIO	MHz	DYNAMIC EVENT	CME	X-ray HARD	PROTONS	Attendant		
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP to/	v / T /pa	An/ tm / Emax	E>10MeV	n
						J*m-2				s.e.p.	km/s	keV	D  tmax/Ipr	/GLE phenomena			
20150103	0940	0947	0957	M1.1/1N	.0031	S04E17L126	12253				57				R2/0946/050-100		
20150104	1517	1536	1731	2N/M1.3	.016	S07E02L126	12253								R /1534/012-025		
20150113	*0413	0424	0604	M5.6/2B	WL.045	N06W70L320	12257				290				R /0454/012-025		WL
20150113	*0446	0458	0510	M4.9/2B	.062	N05W76L320	12257										
20150114	1230	1258	>1308	M2.2/	.020	N08W89L320	12257								R /1255/006-012		
20150122	0443	0452	>0502	M1.4/	.0096		12268?										
20150126	1646	1653	1658	M1.1/	.0046	S09E32L046	12268				2012/0447/011/031	R /1651/025-050?					
20150128	0421	0441	0609	M1.4/2N	.021	S09E09L046	12268				0600/0222/022/096	R2/0517/012-025					
20150128	2132	2137	>2141	M1.0/SF	.0024	N08E73L336	12277				2200/0817/054/120	R /2137/006-012					
20150129	1132	1142	~1222	M2.1/1B	.017	S12W06L046	12268					R /1138/025-050					
20150130	0032	0044	>0102	M2.0/	.023	S13W16L046	12268				gap						

D A T E		T I M E			IMPORTANT	COORDINATES AR			RADIO	MHz	DYNAMIC EVENT		CME	X-ray HARD		PROTONS	Attendant	
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP	to/	v / T /pa	An/ tm / Emax	E>10MeV	n
						J*m-2				s.e.p.			km/s	keV	D  tmax/Ipr	/GLE phenomena		
20150130	0529	0536	>0635	M1.7/	.048	S13W16L046	12268						gap			R3/0604/025-050		
20150130	1210	1216	>1221	M2.4/	.0087	N07E52L336	12277		110				gap			R /1215/025-050		
20150204	0208	0215	0255	M1.2/2N	.0057	N10W14L329	12277						0248/0241/098/261			R /0211/012-025		
20150209	2259	2335	>0004	M2.4/	.076	N12E61L194	12282	480				II/1 IV/2	2324/1106/360/051			R /2325/012-025		
20150302	0631	0639	>0644	M1.0/1F	.0046	N19W84L063	12290					II/1 IV/1	0700/0383/123/318			R /0637/050-100		
20150302	0937	0948	>0958	M1.1/	.0094	N20W85L063	12290									R /0946/012-025		
20150302	1510	1528	>1537	M3.7/	.031	N20W87L063	12290	23	16				1545/0452/204/318			R /1537/012-025		
20150302	1921	1931	>1936	M4.1/	.019	N20W86L063	12290						1938/0227/020/285			R /1924/012-025		
20150303	0125	0135	>0157	M8.2/SB	.044	N21W87L063	12290					II/1 IV/1	0136/0390/086/292c			R /0134/050-100		
20150305	1706	1811	>1826	M1.2/	.023	S14E88L195	12297											
20150306	0414	0457	>0527	M3.0/	.090	S29E87L195	12297		120				0439/0812/155/116			R /0442/012-025		
20150306	0655	0815	>0828	M1.5/	.068	S20E87L195	12297						0712/0880/275/092			R3/0742/012-025		
20150307	2145	2222	>2258	M9.2/	.23	S19E74L195	12297	23	16	II/1 IV/2			2212/1261/360/125			R /2211/025-050		
20150309	1418	1422	>1455	M4.5/1N	.016	S15E49L196	12297	130					1512/0448/041/082			R2/1440/012-025		
20150309	2329	2353	>0012	M5.8/2N	.085	S18E45L196	12297	240	170	II/2 IV/2			0000/0995/360/107					
20150310	0319	0324	>0328	M5.1/2B	.017	S15E40L196	12297	910	130	II/1 IV/1			0336/1040/360/071			R /0323/100-300		
20150310	2346	0002	>0006	M2.9/SF	.010	S16E28L196	12297			II/1			0024/0702/081/074			R2/0002/050-100		
20150311	*0710	0718	>0756	M1.8/1B	.022	S16E26L196	12297		57				0824/0530/062/067			R /0706/012-025?		
20150311	*0751	0757	>0803	M2.6/	.013		12297	590					0824/0462/118/337			R /0806/006-012?		
20150311	1401	1622	1809	2B/X2.1	.12	S17E21L196	12297	360	160	II/2			1712/0075/110/347			R12/1621/025-050		
20150311	1837	1851	>1857	M1.0/1N	.0063	S16E18L196	12297		77							R /1850/025-050		
20150312	0441	0446	>0450	M3.2/	.011	S15E11L196	12297									R /0445/050-100		
20150312	1138	1150	>1202	M1.6/	.015	S17E11L196	12297	130										
20150312	1209	1214	>1218	M1.4/	.0055	S18E05L196	12297		220							R /1212/050-100		
20150312	1345	1404	1433	2B/M4.2	.021	S15E06L196	12297	2300	53	IV/1						R /1353/012-025		
20150312	2144	2151	>2156	M2.7/	.012	S15E01L196	12297	530	230	II/1						R /2149/025-050		
20150313	0347	0401	>0416	M1.2/	.014	S17E04L196	12297						0436/0294/009/311?			R /0405/012-025		
20150313	0549	0607	>0612	M1.8/	.013	S14W02L196	12297	280					0848/0323/006/212c			R /0606/025-050		
20150314	0423	0440	0523	M1.3/2N	.014	S14W12L196	12297											
20150315	0936	0940	1012	M1.0/SN	.0040	S20W24L196	12297									R2/1020/012-025		
20150315	2242	2322	>2338	M1.2/	.027	S19W32L196	12297						2324/0284/015/290			R2/2254/025-050		
20150316	1039	1058	1151	M1.6/2N	.025	S17W39L196	12297						1124/0441/019/225			R4/1052/025-050		
20150317	2249	2334	0045	M1.0/2N	.014	S21W56L196	12297	1500	110	II/2			2348/0510/110/239			R3/2314/050-100		
20150408	1437	1443	1447	M1.4/1B	.0040	S14W04L214	12320	110					1648/0346/012/282?			R /1443/025-050		
20150412	0851	0950	>1044	M1.1/	.043	N11E18L094	12321	160					0948/0336/123/068			R /0958/012-025		
20150421	0708	0721	0731	M1.0/SF	.0064	N09W80L116	12322	210								R /0719/050-100		
20150421	1017	1040	>1059	M2.2/	.037	n19e90L309	12333?						1036/2039/191/044					
20150421	1141	1157	1226	M2.2/SF	.011	N10W84L116	12322						1148/0698/083/297			R3/1155/100-300		
20150421	1655	1700	>1709	M2.1/SF	.012	N13W84L116	12322									R /1651/050-100?		
20150421*	2139	2145	>2155	M1.8/	.011	N10W80L116	12322									R /2143/100-300		
20150421*	2158	2201	>2204	M1.2/	.0028	N09W80L116	12322											
20150422	0830	0844	>0858	M1.1/SF	.012	S09E05L116	12332						0912/0536/008/178?			R2/0834/100-300		
20150423	0918	1007	>1110	M1.1/	.057	N07W80L121	12322			II/1			0936/0857/360/291?			R4/1004/025-050		
20150505	0942	0947	>0951	M1.9/	.0054	N14E82L139	12339						1048/0701/036/103					
20150505	1345	1353	>1356	M1.2/SF	.0046	N15E75L133	12339						1400/0311/066/048c			R /1355/012-025		
20150505	1419	1425	>1432	M1.3/	.0067	S16E17L194	12335						1412/0286/077/050			R /1424/025-050		
20150505	1706	1724	1750	2N/M2.6	.013	S17E15L194	12335						1924/0183/020/103			R2/1723/025-050		
20150505	2205	2211	>2215	X2.7/	.093	n15e79L139	12339	4500	590	II/2			2224/0715/360/041			R /2212/300-800		
20150506	1145	1149	>1151	M1.9/	.0032	N17E67L139	12339	720	34				1212/0738/132/059					

D A T E		T I M E			IMPORTANT	COORDINATES AR			RADIO	MHz	DYNAMIC EVENT		CME	X-ray HARD		PROTONS	Attendant	
y	m	d	to	tm	te	Xray/opt	L	lt	lg	L	245	2695	RADIO SWEEP	to/	v / T /pa	An/ tm / Emax	E>10MeV	n
					J*m-2					s.e.p.		km/s	keV		D  tmax/Ipr	/GLE phenomena		
20150611	0849	0855	>0859	M1.0/	.0034	S19E83L005	12367							1000/0689/128/075	R /0854/025-050			
20150613	0711	0723	0755	SF/M1.3	.017	N14W78L127	12360								R2/0713/050-100			
20150614	0052	0059	>0109	M2.0/	.014	N14W81L127	12360								R /0104/012-025			
20150618	0033	0127	>0155	M1.2/	.040	S16W81L077	12365						0126/1714/195/270	R2/0127/012-025	18 1435/16			
20150618	1629	1736	1905	1N/M3.0	.087	N15E50L303	12371	250	2200		IV/2		1724/1305/360/092	R3/1637/100-300				
20150620	0628	0648	~0734	M1.0/1F	.018	N13E25L303	12371						0643/0584/360/177	R2/0633/050-100				
20150621*	0102	0142	0434	M2.0/1N	.032	N12E13L303	12371	360	100	II/2	IV/2		0236/1366/360/072	R2/0128/025-050				
20150621*	0206	0236	0434	1N/M2.6		N12E13L303	12371	1000	490					R6/0228/025-050				
20150621	<0924	0944	1031	2B/M3.8	.016	S21W57L005	12367				IV/1							
20150621	1810	1820	>1828	M1.1/	.0079	S18W65L005	12367							R /1826/012-025	22 1900/1070			
20150622	1723	1823	2053	2B/M6.5	.019	N12W08L301	12371	10000	1000	II/1			1836/1209/360/358c	R7/1816/100-300				
20150625	0802	0814	0905	M7.9/3B	.017	N09W42L301	12371	1000	3800	II/1	IV/1		0836/1627/360/330	R /0848/050-100	27 0030/22			
20150703	1247	1251	1253	M1.5/1N	.0025	S15E68L092	12378							R /1251/050-100				
20150706	0824	0844	0859	M1.0/SN	.012	N17E42L073	12381							R2/0829/025-050				
20150706	2032	2040	2050	M1.7/2N	.012	N18E36L073	12381							R2/2040/025-050				
20150821	0156	0218	0237	M1./1F	.022	S16E39L193	12403							g				
20150821	0934	0948	1007	M1./2B	.018	S17E26L193	12403	120	73	II/1			1012/0555/270/072	g				
20150821	1910	2034	2050	M1./1N	.031	S12E26L193	12403							R2/2027/012-025				
20150822	0639	0649	0659	M1./1B	.010	S15E20L193	12403	330	62	II/2	IV/2		0712/0547/360/095	R /0659/012-025				
20150822	2119	2124	2128	M3.5/1B	.011	S15E15L193	12403						?2236/0259/010/250	R /2124/050-100				
20150824	0726	0733	0735	M5.6/1B	.011	S15W04L193	12403	6900	100				0848/0272/088/245					
20150824	1740	1746	>1749	M1.0/	.003	L193	12403											
20150827	0448	0544	0603	M2.9/1N	.042	S14W45L193	12403						0736/0191/022/247					
20150828	1304	1316	1323	M2.2/1F	.016	S14W65L193	12403							R /1311/025-050				
20150828	1856	1903	1906	M2.1/1N	.005	S13W70L193	12403											
20150830	0201	0330	>0423	M1.4/	.071		12403											
20150917	<0928	0934	>0935	SF/M1.1	.0046	S21W04L230	12415											
20150920	0455	0503	>0517	M1.5/	.013	NO9E83L108	12420							R /0502/025-050				
20150920	1730	1803	1959	2N/M2.1	.045	S20W24L230	12415	140	320	II/1			1812/1239/360/219	R /1815/012-025	20 2045/3			
20150927	1020	1040	1046	M1.9/1F	.0098	S22W08L106	12422							R /1023/012-025				
20150927	2054	2100	2115	M1.0/1N	.0081	S21W16L106	12422							R /2059/025-050				
20150928	0345	0355	0359	M3.6/SF	.016	S09W67L149	12423	270										
20150928	0727	0735	0746	M1.1/1F	.0085	S22W08L106	12422						0748/0634/118/288	R /0729/006-012				
20150928	1301	1318	1329	M1.1/1N	.013	S22W24L106	12422						1448/0237/076/265	R /1308/012-025				
20150928	1453	1458	>1503	M7.6/	.028	L106	12422		100									
20150929	0311	0316	0331	M1.2/SF	.0026	S08W78L149	12423							R2/0314/025-050				
20150929	0341	0343	0353	M1.1/SF	.0003	S20W36L106	12422											
20150929	0505	0516	0523	M2.9/SF	.019	S21W37L106	12422	410					0548/0503/031/254					
20150929	0533	0537	0539	M1.2/SF	.0026	S09W82L149	12423							R2/0537/012-025				
20150929	0553	0556	>0604	M1.0/	.0016	L106	12422							R /0555/012-025				
20150929	0639	0643	0646	M1.4/1N	.0035	S20W34L106	12422											
20150929	0846	0851	0855	M1.3/1N	.0067	S10W77L149	12423	200					0836/0373/117/351?					
20150929	1109	1115	1120	M1.6/1B	.0061	S21W37L106	12422						1336/0164/107/351	R /1114/025-050				
20150929	1920	1924	1927	M1.1/1B	.012	S20W36L106	12422	330					2000/0523/090/247					
20150930	1049	1059	1113	M1.3/1N	.014	S22W46L106	12422							R2/1054/025-050				
20150930	1318	1320	1321	M1.1/1N	.0016	S23W59L106	12422											
20151001	1303	1310	1314	M4.5/SN	.013	S23W64L106	12422							g	01 0000/1.4			
20151002	0006	0013	0017	M5.5/1N	.020	S19W67L106	12422							R /0012/050-100				
20151002	1219	1226	>1231	M1.0/	.0041	L106	12422							R /1225/025-050				

